Date: March, 2005

Guidelines For Estimating

Swine Hoop Shelter Finishing Costs

Based on marketing 11,527 pigs sold from 17 shelters

This publication is intended to provide a format and a set of guidelines for determining the costs of production of a hoop shelter housing system for a finishing (23-113 kg) enterprise. The assumptions on which the costs are based are outlined in the supporting pages. Productivity and performance assumptions are based on information collected by department specialists, feed companies and other organizations. Adjustments will be necessary where individual productivity and performance levels differ from those listed.

A hoop shelter is a Quonset-shaped building with sidewalls made from wood planks and posts. Steel arches are fastened to the posts to form a hooped roof, which is covered by a UV resistant tarp (See Figure 1, Page 16). Most hoop structures have a deep-bedded earthen floor except for a concrete pad section containing the feed bin and waterer (See Figure 2, Page 16). These naturally ventilated structures are often sited in an east-west orientation in Manitoba to take advantage of our prevailing wind conditions.

Hoop shelters have been used for several years in Manitoba and have potential benefits for pigs and producers including: 1) they are low capital (fixed) cost facilities; 2) they are flexible, practical and can be used or adapted for other purposes; 3) hoop shelters provide an environment for pigs with bedding (usually straw) and allow for group interactions among pigs, and; 4) hoop shelters provide a working environment with lower levels of manure gases and a solid (straw based) manure handling system.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user. If you require assistance with developing your individual budget, please contact your local MAFRI office.

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Swine Hoop Shelter Finishing Cost of Production

The following 23-113 kg hoop budget is based on the assumption that **all feed rations are home mixed**. The budget also includes a land investment cost based on the assumption that 160 acres would be required for this size operation, with 140 acres rented out at $25 per acre.

The budget includes an assumption that 1.5% of the market pigs are sold as lightweight pigs. It is assumed that when the lightweight pigs are sold, they will have a salvage value. Therefore, total marketing's are reduced by 1% to compensate for the lightweight pigs.

The budget also includes an assumption that this particular hoop shelter operation is "all-in, all-out" by shelter. Each shelter is designed to house 250 growing/finishing pigs. The budget includes an assumption that five hundred (500) pigs will be delivered on site every two weeks. This will provide enough 23-kg pigs to fill two shelters at a time. Marketing of pigs will also be completed on a two to three week schedule. Once the market pigs are all removed from a shelter, the manure pack is cleaned out and the shelter is re-strawed with 12 to 15 large (700 kg) round or square bales. A producer can expect to finish three batches (cycles) of pigs per year per hoop shelter.

The suggested space allocation for finishing pigs in a hoop shelter is 1.1 square metres (12 square feet) per pig.

The rations illustrated in this budget are examples only. Individual farm conditions should be taken into account when formulating the diets. Producers need to know the feed intakes of their animals. Pigs will consume approximately 10% more feed in a hoop shelter than in a confinement system during the winter (1 batch), whereas feed intakes will be approximately the same as in a confinement system for the remainder of the year (2 batches). Please consult with a nutritionist for diet information suggestions.

The Manitoba pork production industry profile is changing and this budget was specifically designed to address the need of producers who may want to analyze the cost of starting up or switching to a hoop shelter 23-113 kg finishing operation. Several companies are offering contracts with varying levels of guarantees. Producers need to accurately calculate their costs before they can properly make a decision.

Swine Hoop Shelter Finishing Costs Summary
March, 2005

	$/Pig Sold	Total Cost	Your Cost
A. Operating Costs			
1. Feed Costs:			
1.01 Starter	$11.58	$133,510	
1.02 Grower	$14.30	$164,836	
1.03 Finisher	$16.23	$187,039	
Total Feed Cost	**$42.11**	**$485,385**	
2. Other Operating Costs:			
2.01 Weanling Cost	$64.03	$738,046	
2.02 Straw	$2.48	$28,543	
2.03 Veterinary Medicine & Supplies	$1.65	$19,000	
2.04 Maintenance & Repairs	$0.48	$5,547	
2.05 Hydro & Propane	$0.09	$1,000	
2.06 Insurance	$0.87	$10,033	
2.07 Manure Costs	$2.60	$30,000	
2.08 Office Supplies	$0.10	$1,185	
2.09 Marketing & Transport	$4.48	$51,639	
2.10 Property Tax	$0.09	$1,000	
Subtotal Operating Costs	$118.98	$1,371,378	
2.11 Interest on Operating Costs	$1.84	$21,152	
Total Operating Costs	**$120.81**	**$1,392,530**	
B. Fixed Costs			
3. Depreciation:			
3.01 Buildings & Manure Storage	$2.27	$26,124	
3.02 Equipment	$1.88	$21,651	
Total Depreciation Cost	**$4.14**	**$47,775**	
4. Investment:			
4.01 Land	$0.14	$1,600	
4.02 Buildings & Manure Storage	$0.45	$5,225	
4.03 Equipment	$0.46	$5,346	
Total Investment Cost	**$1.06**	**$10,571**	
Total Fixed Costs	**$5.20**	**$58,346**	
C. Labour			
Wages, benefits and hired manager	$5.05	$58,240	
Total Cost of Production	**$131.06**	**$1,509,116**	
Break-Even Price (carcass) [1]	**$/100 kg**	**$/cwt**	
Operating Cost	$122.72	$55.66	
Operating & Labour Cost	$127.85	$57.99	
Operating, Labour & Fixed Cost	$133.13	$60.39	

[1] Break-even Price = Cost per Hog Sold ÷ (Slaughter Weight (-shrink) x Dressing Percentage x Index)

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user.

Swine Hoop Shelter Finishing Production Cost Assumptions

1. This input table outlines the cost of production for a finishing enterprise.
2. Buildings and equipment are valued at new cost.
3. Purchased feed is used.
4. Manure haulage is contracted out.
5. Livestock values are based on a market price for pork of:

	$155.00	/100 kg	**110**	Market Index
or:	$0.70	/lb	**80**	% Dress
Premium/head		**$2.00**		

Indicators of Productivity

	Starter	Grower	Finish	Total
Number of Pigs Purchased Annually	**12000**	11880	11761	12000
Average Beginning Weight (kg)	**23**	50	80	23
Average Ending Weight (kg)	**50**	**80**	**113**	113
Percent Mortality	**1.0**	**1.0**	**1.0**	3.0
Days on Feed	**36**	**30**	**45**	111
Feed Conversion Ratio	**2.60**	**3.20**	**3.60**	3.17
Number of Pigs (Ending)	11880	11761	11643	11643
Weight Gain/Pig (kg)	27.0	30.0	33.0	90.0
Feed Disappearance/Pig (kg)	70.2	96.0	118.8	285.0
Average Daily Gain (kg)	0.750	1.000	0.733	0.811
Average Number Pigs in Shelters	3991	3951	3911	3951

Productivity Profile

	Total		
Pigs Purchased	12,000		
Pigs Died	360	3.0	% mortality
Pigs available for marketing	11,643		
Less Light Weight Pig Adjustment	116	**1.00**	%
Pigs Sold at full market value	11,527		
Washing and restocking days	**11**		
Total Days to Market	122		
Turnover (365 / days to market)	2.99		
Pigs per shelter	**250**		
Shelters required (1 extra for overflows)	17		

Feed Requirements and Costs

	FCR *	kg/pig	Ration Cost Purchased	Home-Mixed	
Starter Ration	2.60	70.2	**$0.00**	$158.49	/tonne
Grower Ration	3.20	96.0	**$0.00**	$143.09	/tonne
Finisher Ration	3.60	118.8	**$0.00**	$131.20	/tonne

*** FCR = Feed Conversion Ratio (Feed:Gain)**

Labour

Total Hours per year	**80.0**	hours/week	4,160 hours/year
Wage (includes hired manager)	**$14.00**	/hour	

Capital Investment[1]

Based on 4,000 **Pig Places**

			Total	/Pig Place	Your Cost
Buildings					
Shelters	**17** @	**$14,308**	$243,236	$60.81	
Office & Loading	**200** ft.^{2}	**$25.00**	$5,000	$1.25	
Standby Generator			$3,000	$0.75	
Feed Mill (building only)			**$10,000**	$2.50	
Total Building Cost			**$261,236**	**$65.31**	
Equipment					
Skid Steer loader			$20,000	$5.00	
Tractor			$50,000	$12.50	
Snow Blower			$3,000	$0.75	
Auto sorter (2 @ $10,000)			$20,000	$5.00	
Storage Bins			**$30,000**	$7.50	
Feed Mill (equipment only)			**$120,000**	$30.00	
Total Equipment Cost			**$243,000**	**$60.75**	
Total Buildings and Equipment Cost			$504,236	**$126.06**	
Land Value					
Land Investmen	20 acres @	$500	**$10,000**	**$2.50**	
Rental Income					
Other Costs					
Site preparation (includes manure storage)			**$30,000**	$7.50	
Manure Storage			**$0**	$0.00	
Total Other Costs			**$30,000**	**$7.50**	
Total Capital Investment			**$544,236**	**$136.06**	

Feed Ingredient Costs

	Price/tonne	Your Cost
Wheat	$110	
Barley	$110	_____
Corn	$117	_____
Soybean Meal - 47 %	$270	_____
Canola Meal - 34 %	$165	_____
Peas	$100	_____
Creep Premix	$850	_____
Sow Mico Premix	$3,000	_____
Grower Micro Premix	$2,500	_____
Canola Oil	$900	_____
Whey Powder	$800	_____
Herring Meal	$1,500	_____
Plasma	$7,500	_____
Limestone	$80	_____
Dical (16% Ca-21% P)	$455	_____
Salt - 96%	$125	_____
Phytase	$11,000	_____
L-Lysine HCL	$2,500	_____
L-Threonine	$4,800	_____
DL-Methionine	$4,500	
Oats Steam Rolled	$400	
Processing Cost (Hydro, Repairs/Maintenance & Insurance)	$3.25	_____
Percent Weight loss due to processing	1.25 %	_____
Labour Cost	$4.00	_____

Ration Formulas

	Starter Ration (kg)	Grower Ration (kg)	Finisher Ration (kg)
Wheat	532.56	372.39	220.04
Barley	183.30	268.60	408.35
Corn	0.00	0.00	0.00
Soybean Meal - 47 %	158.80	45.37	0.00
Canola Meal - 34 %	0.00	84.39	79.40
Peas	100.00	204.07	272.13
Creep Premix	0.00	0.00	0.00
Sow Mico Premix	0.00	0.00	0.00
Grower Micro Premix	3.00	3.00	3.00
Canola Oil	0.00	0.00	0.00
Whey Powder	0.00	0.00	0.00
Herring Meal	0.00	0.00	0.00
Plasma	0.00	0.00	0.00
Limestone	12.21	11.71	10.38
Dical (16% Ca-21% P)	4.85	5.38	2.84
Salt - 96%	3.50	3.50	3.50
Phytase	0.20	0.20	0.20
L-Lysine HCL	1.36	1.36	0.00
L-Threonine	0.09	0.00	0.02
DL-Methionine	0.13	0.03	0.14
Oats Steam Rolled	0.00	0.00	0.00
Total	1,000.00	1,000.00	1,000.00

Feed Requirement and Cost Summary

	Amount (kg)	Ingredient Price ($ /tonne)	Ration Cost ($ /tonne)	Your Cost
Starter				
Wheat	532.56	$110.00	$58.58	
Barley	183.30	$110.00	$20.16	
Soybean Meal - 47 %	158.80	$270.00	$42.88	
Peas	100.00	$100.00	$10.00	
Grower Micro Premix	3.00	$2,500.00	$7.50	
Limestone	12.21	$80.00	$0.98	
Dical (16% Ca-21% P)	4.85	$455.00	$2.21	
Salt - 96%	3.50	$125.00	$0.44	
Phytase	0.20	$11,000.00	$2.20	
L-Lysine HCL	1.36	$2,500.00	$3.40	
L-Threonine	0.09	$4,800.00	$0.43	
DL-Methionine	0.13	$4,500.00	$0.59	
Total Starter	**1,000.00 kg**		**$149.37**	
Adjusted For Weight Loss		1.25 %	$151.24	
Plus Processing Cost		$3.25	$154.49	
Plus Labour Cost		$4.00	**$158.49**	
Grower				
Wheat	372.39	$110.00	$40.96	
Barley	268.60	$110.00	$29.55	
Canola Meal - 34 %	84.39	$165.00	$13.92	
Soybean Meal - 47 %	45.37	$270.00	$12.25	
Peas	204.07	$100.00	$20.41	
Grower Micro Premix	3.00	$2,500.00	$7.50	
Limestone	11.71	$80.00	$0.94	
Dical (16% Ca-21% P)	5.38	$455.00	$2.45	
Salt - 96%	3.50	$125.00	$0.44	
Phytase	0.20	$11,000.00	$2.20	
L-Lysine HCL	1.36	$2,500.00	$3.40	
DL-Methionine	0.03	$4,500.00	$0.14	
Total Grower	**1,000.00 kg**		**$134.16**	
Adjusted For Weight Loss		1.25 %	$135.84	
Plus Processing Cost		$3.25	$139.09	
Plus Labour Cost		$4.00	**$143.09**	

Finisher				
Wheat	220.04	$110.00	$24.20	
Barley	408.35	$110.00	$44.92	
Canola Meal - 34 %	79.40	$165.00	$13.10	
Soybean Meal - 47 %	0.00	$270.00	$0.00	
Peas	272.13	$100.00	$27.21	
Grower Micro Premix	3.00	$2,500.00	$7.50	
Limestone	10.38	$80.00	$0.83	
Dical (16% Ca-21% P)	2.84	$455.00	$1.29	
Salt - 96%	3.50	$125.00	$0.44	
Phytase	0.20	$11,000.00	$2.20	
L-Threonine	0.02	$4,800.00	$0.10	
DL-Methionine	0.14	$4,500.00	$0.63	
Total Finish	**1,000.00 kg**		**$122.42**	
Adjusted For Weight Loss		1.25 %	$123.95	
Plus Processing Cost		$3.25	$127.20	
Plus Labour Cost		$4.00	**$131.20**	

Swine Hoop Structure Finishing Production Cost Worksheet

A. Operating Costs

Your Cost

1. Feed Requirements and Costs

1.01 Starter

			Your Cost
	27.0	weight gain/pig	
x	2.6	feed conversion ratio	
=	70.2	kg ration/pig	
x	$158.49	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$11.58**	**/pig sold**	

1.02 Grower

	30.0	weight gain/pig	
x	3.2	feed conversion ratio	
=	96.0	kg ration/pig	
x	$143.09	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$14.30**	**/pig sold**	

1.03 Finisher

	33.0	weight gain/pig	
x	3.6	feed conversion ratio	
=	118.8	kg ration/pig	
x	$131.20	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$16.23**	**/pig sold**	

2. Other Operating Costs

2.01 Weanling Cost

	$70.00	market price	
÷	100	lbs/cwt	
x	1.7	formula factor	
x	50	lbs	
+	$2.00	trucking cost	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$64.03**	**/pig sold**	

2.02 Straw

	12,000	number of pigs	_____
x	111	days on feed	_____
x	1.0	kg straw/pig/day	_____
x	$15.00	per bale	_____
÷	700	kg/bale	_____
÷	11,527	pigs sold	_____
=	**$2.48**	**/pig sold**	_____

2.03 Veterinary Cost

	$1,000	professional services	_____
+	$18,000	medication	_____
÷	11,527	pigs sold	_____
=	**$1.65**	**/pig sold**	_____

2.04 Maintenance & Repairs

	1.10	% of total capital investment	_____
x	$504,236	total buildings and equipment cost	_____
÷	11,527	pigs sold	_____
=	**$0.48**	**/pig sold**	_____

2.05 Utilities

	$1,000	hydro	
+	$0	propane	_____
÷	11,527	pigs sold	_____
=	**$0.09**	**/pig sold**	_____

2.06 Insurance

	$504,236	buildings & equipment	_____
x	$0.78	/$100	_____
÷	100	/$100 capital	_____
÷	11,527	pigs sold	_____
=	$0.34	/pig sold	_____
	3.951	average # pigs in shelters	_____
x	$140.00	average value	_____
x	$0.88	/$100	_____
÷	100	/$100 capital	_____
÷	11,527	pigs sold	_____
=	$0.42	/pig sold	_____
	$40.00	insured value	_____
x	3.951	average number in barn	_____
x	$0.78	rate /$100	_____
÷	11,527	pigs sold	_____
=	$0.11	/pig sold	_____
=	**$0.87**	**/pig sold**	_____

2.07 Manure Costs

	$30,000	annual cost	
÷	11,527	pigs sold	
=	**$2.60**	**/pig sold**	

2.08 Office Supplies

	$0.30	/pig place	
x	3,951	pig places	
÷	11,527	pigs sold	
=	**$0.10**	**/pig sold**	

2.09 Marketing & Transportation

	$0.00	trucking-in	
+	$2.80	trucking-out	
+	$0.80	council levy	
+	$0.12	grading charge	
+	$0.26	insurance	
+	$0.50	Special fee	
=	**$4.48**	**/pig sold**	

2.10 Property Taxes

	$1,000	taxes	
÷	11,527	pigs sold	
=	**$0.09**	**/pig sold**	

2.11 Interest on Operating Cost

	$64.03	weaner cost	
x	122	total days to market	
x	6.0	% operating rate	
÷	365	days/year	
=	$1.28	/pig sold	
	$118.98	subtotal operating cost	
-	$64.03	weaner cost	
÷	2	average	
x	122	total days to market	
÷	365	days/year	
x	6.00	% operating rate	
=	$0.55	/pig sold	
=	**$1.84**	**/pig sold**	

B. Fixed Costs

3. Depreciation

$$\frac{\text{Original cost - Salvage Value}}{\text{Useful Life}}$$

3.01 Buildings

	$261,236	total cost	
-	$0	salvage value	
÷	10	years useful life	
÷	11,527	pigs sold	
=	**$2.27**	**/pig sold**	

3.02 Equipment

	$243,000.00	total equipment cost	
-	$24,300.00	salvage value	
÷	10	years useful life	
÷	11,527	pigs sold	
=	**$1.88**	**/pig sold**	

4. Investment Cost

$$\frac{\text{(Original Cost + Salvage Value)}}{2} \text{ X Investment Rate}$$

4.01 Land

	$10,000	land investment	
+	$30,000	site preparation	
x	4.0	% investment rate	
÷	11,527	pigs sold	
=	**$0.14**	**/pig sold**	

4.02 Buildings

	$261,236	total cost	
	$0	salvage value	
+	2	average	
÷	4.0	% investment rate	
x	11,527	pigs sold	
÷	**$0.45**	**/pig sold**	
=			

4.03 Equipment

	$243,000	total equipment cost	_____
	$24,300	salvage value	_____
+	2	average	_____
÷	4.0	% investment rate	_____
x	11,527	pigs sold	_____
÷	**$0.46**	**/pig sold**	
=			

C. Labour Cost

	4160	total hours/year	_____
	$14.00	/hour	_____
x	11,527	pigs sold	_____
÷	**$5.05**	**/pig sold**	_____
=			

Summary of Purchased Feeds Used

11,643 Pigs available for marketing (includes lightweights)

	Total per Pig Mkt (kgs)	Total per Year (tonnes)	Total per Month (tonnes)	Total per Pig Mkt (lbs)
Starter	0.00	0.00	0.00	0.00
Grower	0.00	0.00	0.00	0.00
Finisher	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**

Summary of Home Mixed Feed Ingredients Used

	Total per Pig (kgs)	Total per Year (tonnes)	Total per Month (tonnes)	Total per Pig (lbs)
Wheat	99.28	1,155.87	96.32	218.86
Barley	87.17	1,014.86	84.57	192.16
Corn	0.00	0.00	0.00	0.00
Soybean Meal - 47 %	15.50	180.50	15.04	34.18
Canola Meal - 34 %	17.53	204.15	17.01	38.66
Peas	58.94	686.24	57.19	129.94
Creep Premix	0.00	0.00	0.00	0.00
Sow Mico Premix	0.00	0.00	0.00	0.00
Grower Micro Premix	0.86	9.95	0.83	1.88
Canola Oil	0.00	0.00	0.00	0.00
Whey Powder	0.00	0.00	0.00	0.00
Herring Meal	0.00	0.00	0.00	0.00
Plasma	0.00	0.00	0.00	0.00
Limestone	3.21	37.43	3.12	7.09
Dical (16% Ca-21% P)	1.19	13.91	1.16	2.63
Salt - 96%	1.00	11.61	0.97	2.20
Phytase	0.06	0.66	0.06	0.13
L-Lysine HCL	0.23	2.63	0.22	0.50
L-Threonine	0.01	0.10	0.01	0.02
DL-Methionine	0.03	0.33	0.03	0.06
Oats Steam Rolled	0.00	0.00	0.00	0.00
Total	**285.00**	**3,318.26**	**276.52**	**628.31**
Total	**285.00**	**3,318.26**	**276.52**	**628.31**

For further information contact your local MAFRI office.

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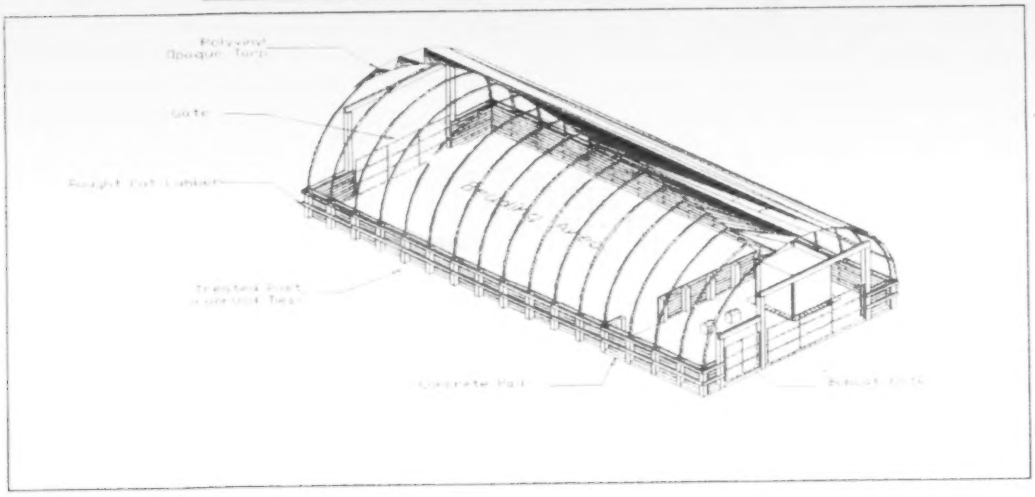
Figure 1 Common components of hoop structures



Estimated shelter costs for a 30 'x 102' structure

Tarp & hoops	$5,575
End doors	$648
4 Corner Panels	$435
Feeder 6 x 6 x 6	$1,415
Waterer (4-Hole)	$980
Heater Cables	$55
Concrete	$850
Railroad Ties	$350
Planking	$1,000
Labour	$3,000
Total	**$14,308**

Figure 2 Common layout of a grow finish structure